

Project Summary
2009 Maintenance Sinkhole Filling Project
Contract AM-584-09



North Dakota Public Service Commission
Abandoned Mine Lands Division
600 East Boulevard Avenue, Department 408
Bismarck, ND 58505-0480

December 2009

**North Dakota Public Service Commission
2009 Maintenance (Sinkhole Filling) AML Project Summary**

Project Type:	Surface backfilling of dangerous sinkholes
Primary Locations:	Thirteen properties near the cities of Wilton, Dickinson, Noonan, Beulah, and Garrison, North Dakota
Project Dates:	October 28 to November 30, 2009
Contractor:	Basaraba Excavating & Dirt Works, L.L.C. of Wilton, ND
Project Cost (To Date):	\$102,132.50

The Public Service Commission administers the Abandoned Mine Lands (AML) Program on behalf of the State of North Dakota. The AML program is charged with eliminating existing and potential public hazards resulting from abandoned surface and underground coal mines. It is funded by a production tax on lignite coal mined in the state.

The 2009 Maintenance (Sinkhole Filling) Project was conducted to fill approximately 300 dangerous sinkholes on 13 properties in western North Dakota. These sinkholes were caused by collapse of abandoned underground coal mines. Standard requirements for sinkhole filling under this contract were as follows:

1. Remove and stockpile topsoil or suitable plant growth material from around/within sinkhole.
2. Excavate the sinkhole (as directed) with a backhoe or excavator.
3. Backfill the sinkhole with approved fill material, compaction with loader or excavator required between lifts.
4. Grade area to blend with adjacent topography and re-establish drainage.
5. Respread topsoil over disturbed areas and finish-grade.
6. Seed (broadcast spreader allowed) disturbed areas with required mixture.
7. Drag the seeded areas with a spike-tooth harrow or equivalent.

The required seed mixture for native grassland areas consisted of the following varieties and rates.

<u>Variety</u>	<u>Rate/Acre – Lbs. (PLS)</u>
Western Wheatgrass	4
Green Needle Grass	4
Sideoats Grama	2
Little Bluestem	2
Switchgrass	4
Slender Wheatgrass	4

This AML Project reduced the likelihood of death or injuries to property owners and the public and of property damage by eliminating some deep and dangerous sinkholes. However, there are many more sinkholes that need to be repaired and new sinkholes are reported each year. Sinkhole filling projects such as these have been conducted annually in North Dakota and will likely continue into the foreseeable future. This project contract will remain open until at least June 30, 2010, so that other dangerous sinkholes reported before that time may be reclaimed.

Cover Photo: The cover photo shows sinkhole filling operations on Mike Wolf's property about 3 miles east of Dickinson, ND. Ten large sinkholes were filled at this location from November 2-3, 2009. The Lehigh Briquetting Company operated an underground coal mine in this area from 1921 until 1949, producing more than 1.3 million tons of coal for domestic use, electrical generation and briquetting.

2009 Sinkhole Maintenance Project, Wilton Sites



The 2009 Sinkhole Maintenance Project began October 28 on property owned by Stan Murrey about 4 miles southwest of Wilton. The historic Little Casino Coal Mine may have operated at this location circa 1883. Four sinkholes were filled on this property including this one which was approximately 13 feet deep.



This sinkhole was located in the east ditch of 80th Street Northeast, about 4 miles northeast of Baldwin or six miles southeast of Wilton. It was reported by the Burleigh County Highway Department on September 15, 2009 and was about six feet wide and 20 feet deep.

2009 Sinkhole Maintenance Project, Wilton Sites



This is another photo of the sinkholes along 80th Street after they were filled. Most of the fill came from a nearby rock pile. No mine maps or other documentation are available for the abandoned mines at this location.



Eight dangerous sinkholes were filled on property owned by Jim Krzmarzick approximately 2 miles east of Wilton. The sinkhole in this photo was in a harvested flax field. It was about 12 feet wide and 15 feet deep.

2009 Sinkhole Maintenance Project, Dickinson Sites



Ten large sinkholes were filled November 2-3 on property owned by Mike Wolf about 3 miles east of Dickinson. More than 1,600 cubic yards of dirt was needed to fill these holes at a cost of \$5,805.



One of the sinkholes on Wolf's property had a power line running across it. Representatives of Roughrider Electric Cooperative were onsite to monitor the filling of this sinkhole on November 2. It was about 25 feet deep.

2009 Sinkhole Maintenance Project, Dickinson Sites



A dangerous sinkhole was also filled on the north shoulder and ditch of Lehigh Drive approximately 3 miles east of Dickinson.



Six sinkholes were filled on property owned by Bill Jablonsky about 12 miles northeast of Dickinson. No mine maps or other documentation are available for the abandoned mine at this location.

2009 Sinkhole Maintenance Project, Noonan Sites



Approximately 181 sinkholes were filled on a tract of about 30 acres owned by the Noonan Landfill a mile southeast of Noonan. Four pieces of heavy equipment and three trucks worked for five days at this site and the cost was \$48,770.



This sinkhole, on property owned by James Kimball about a mile south of Noonan, was difficult to see because of the tall grass, and very dangerous. It was about 12 feet in diameter and 25 feet deep.

2009 Sinkhole Maintenance Project, Beulah Sites



Approximately 80 sinkholes were filled on properties owned by ND Game and Fish Dept., Garner Sailer, Florence Pfliger and Curt Michaelson, near Beulah. Several of the sinkholes were quite large and extended laterally and diagonally.



This shows a bulldozer and payloader filling a large sinkhole on ND Game and Fish property about 4 miles northeast of Beulah.

2009 Sinkhole Maintenance Project, Garrison Sites



Seventeen sinkholes were filled on Dave Mautz' property located directly south of Garrison. The sinkhole in this photo is difficult to see, as it had been farmed around, but it was about 20 feet deep and 130 cubic yards (or about 8 truckloads) of dirt were needed to fill it..



This shows the sinkhole after it was filled and the topsoil had been respread.